

Development of a Network Database for Thermophysical Property Data

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A network database for thermophysical property data has been developed and opened on the internet by a collaboration of scientists, researchers, and engineers who produce data by measurement or evaluation in Japan. This database accumulates thermophysical property data, such as thermal conductivity, specific heat capacity, thermal expansion coefficients, surface tension, viscosity, and density, etc. for a variety of materials, including solids, high temperature melts, and fluids. At present, the thermophysical property data of: 1) standard and basic data; 2) functional materials; 3) reference data of fluids and high temperature melts; 4) thin films and boundary thermal resistances; 5) materials for use at high temperatures; 6) materials for use at low temperatures; and 7) organic materials and inorganic materials, are stored.

This database uses a hierarchy structure for material classification, to which thermophysical property data is assigned. The scope and overall coverage of the database can be viewed by an explorer-like user interface. Target material can be searched for following the hierarchy structure from higher to lower class. A powerful and flexible search engine has been developed with two search modes: "material search" and "property search." The material search can find target materials from information such as material name, chemical formula, material code, etc. The property search can find materials which have physical properties within the specified range. A user friendly graphical user interface has been developed, in order to allow for the efficient access of thermophysical property data via the internet.

This database can be accessed at the URL: <http://www.aist.go.jp/RIODB/TPDB/DBGVsupport/English/index.html>